Volunteer Lake Assessment Program Individual Lake Reports

WAUKEWAN, LAKE, NEW HAMPTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	7,551	**Max. Depth (m):**	21.4	**Flushing Rate (yr^{-1}):**	0.6
Surface Area (Ac.):	913	**Mean Depth (m):**	6.7	**P Retention Coef:**	0.7
Shore Length (m):	13,000	**Volume (m^3):**	24,809,000	**Elevation (ft):**	539

TROPHIC CLASSIFICATION

Year	Trophic class
1982	OLIGOTROPHIC
1994	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

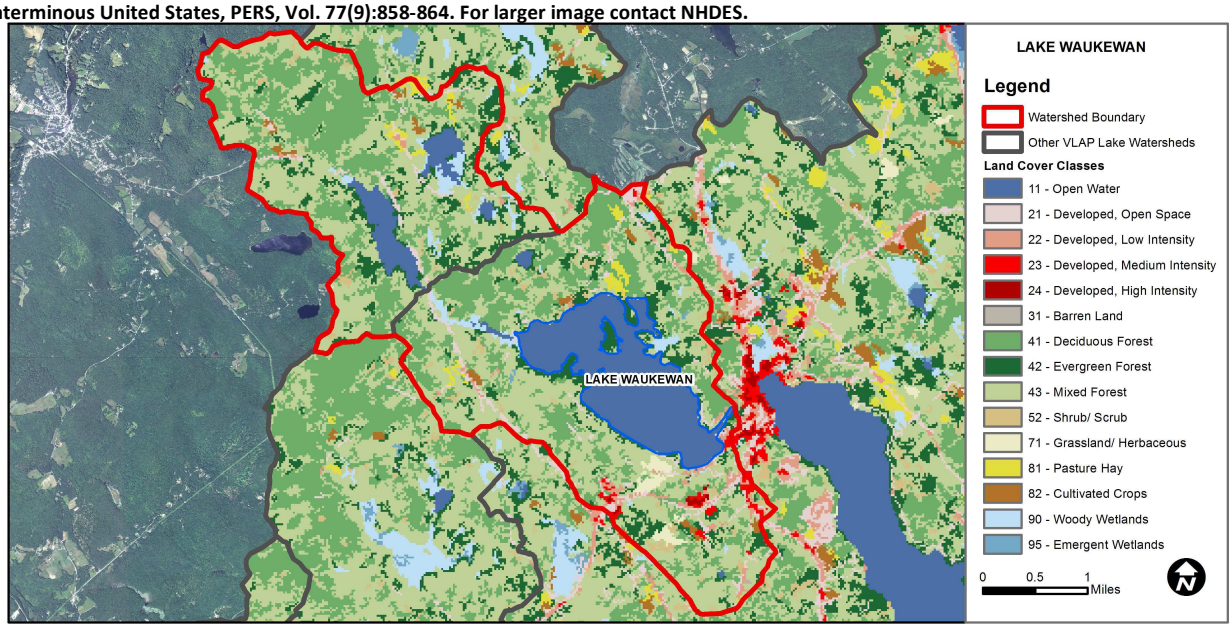
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LAKE WAUKEWAN - TOWN BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	14.6	Barren Land	0.02	Grassland/Herbaceous	0.79
Developed-Open Space	3	Deciduous Forest	25.15	Pasture Hay	1.08
Developed-Low Intensity	1.29	Evergreen Forest	9.6	Cultivated Crops	0.74
Developed-Medium Intensity	0.56	Mixed Forest	39.35	Woody Wetlands	1.81
Developed-High Intensity	0.14	Shrub-Scrub	1.83	Emergent Wetlands	0.05

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
LAKE WAUKEWAN, MAYO STN, MEREDITH, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels remained relatively stable throughout the summer and were less than the NH lake median. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were slightly elevated at all stations and were greater than the NH lake medians.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were low and much less than the NH lake median. Historical trend analysis indicates significantly improving (decreasing) epilimnetic phosphorus since monitoring began. We hope to see this continue! Metalimnetic (middle water layer), hypolimnetic (lower water layer), Inlet, and Perkins Cove phosphorus levels were also low.
- **TRANSPARENCY:** Transparency improved slightly as the summer progressed and was greater than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Turbidity at all stations was low throughout the summer.
- **PH:** pH decreased to undesirable levels in the metalimnion and hypolimnion.
- **RECOMMENDED ACTIONS:** Expand sampling program to include additional tributaries to establish a baseline data set and assess water quality flowing into the lake. Conductivity and chloride were elevated and it is recommended to continue enhanced chloride monitoring during spring snowmelt.

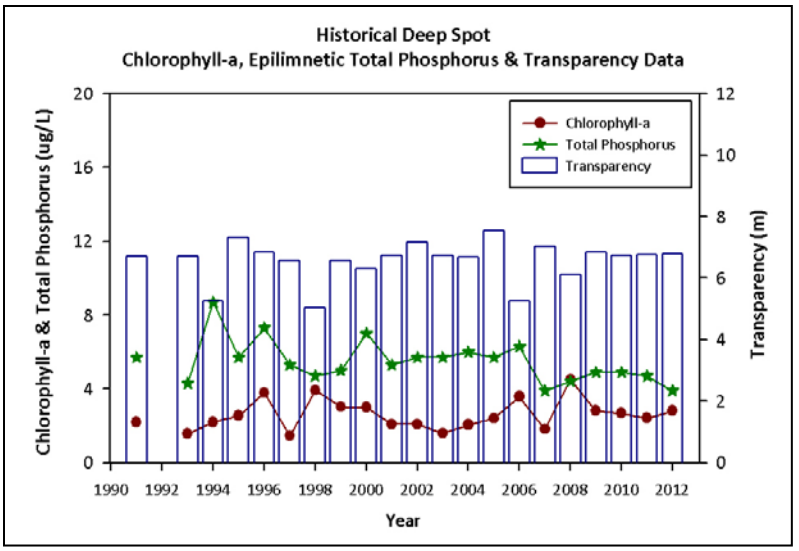
Station Name	Table 1. 2012 Average Water Quality Data for LAKE WAUKEWAN, MAYO STN								
	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	6.6	2.82	15	97.0	4	6.80	7.03	0.42	6.88
Deep Metalimnion				98.3	8			0.73	6.65
Deep Hypolimnion				98.0	8			0.99	6.46
Inlet				81.1	5			0.42	6.66
Perkins Cove				99.9	7			0.52	6.89

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Improving	Data significantly decreasing.



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